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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Satoshi Hata

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EXAMINER

RIGGLEMAN, JASON PAUL

ART UNIT

PAPER NUMBER

1792

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/633,182	Applicant(s) HATA, SATOSHI	
	Examiner JASON P. RIGGLEMAN	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,6,8 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,6,8 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Applicant's amendments filed 10/9/2008 have been received. The current pending claims are 1, 4, 6, and 8-9. Claim 1 is amended. Claims 2-3, 5, 7, and 10 are cancelled.

Response to Amendment

2. Applicant's amendment with respect to claims 1, 4, 6, and 8-9 have been considered. The applicant has incorporated the limitations of claim 10, previously indicated as containing allowable subject matter, into claim 1; however, a new ground(s) of rejection have been made. The previous art rejections are withdrawn in view of the amended claims.

Remarks

3. The "steam" turbine is considered as the intended use of the extraneous matter removing system, as there are no limitations present in the claims, which define the steam turbine. Therefore, little patentable weight has been given to this limitation.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata (Japanese Patent Publication No. 58-077103) in view of Moriya (Japanese Patent Publication No. 61-169627).

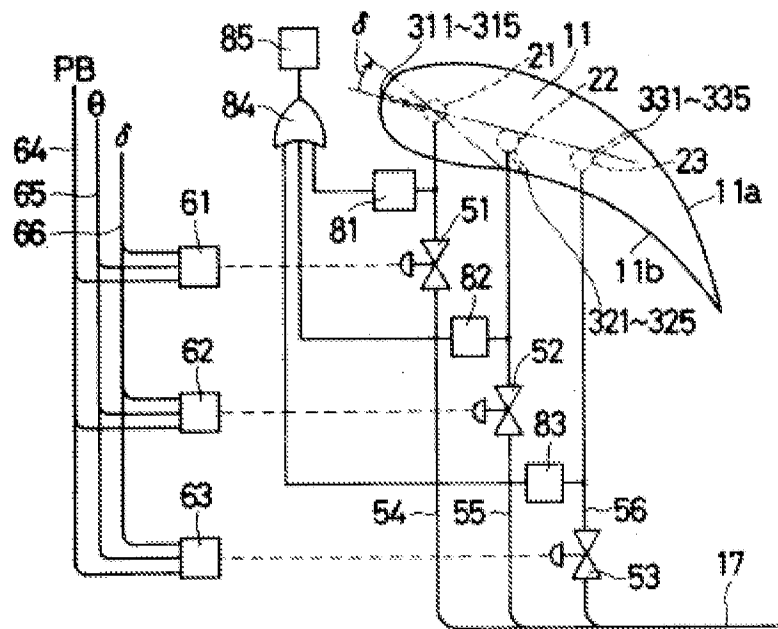
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6. Nagata teaches a turbine having a casing defining a duct. Turbine blades are provided with a moving blade (13) which rotates together with a rotor and a stator blade (11) which is located on the upstream side of the moving blade and is held on the casing and is housed in the duct, Fig. 2. The stator blade (11) has opposing surfaces (11a & 11b) and the duct is operatively positioned to introduce a fluid to the turbine blades and the moving blade is rotated by the fluid introduced into the duct. There is a first water injection nozzle (15) disposed at a position upstream of the stator blade and connected to a water supply, Fig. 2. A plurality of water injection nozzles (331~335), (311~315), (321~325) are disposed in the stator blade (11) and connected to a water supply source via a second valve (51-53), Figs. 5 & 7. The plurality of water injection nozzles comprise a first plurality of nozzles (321~325)(331~335) operatively positioned to cause water to flow onto both opposing surfaces (11b & 11a, respectively) of the stator blade (11). A controller (61-63) operates the opening of the second valve based on the exhaust gas pressure (PB), Fig. 7. Nagata teaches the cleaning of the back surface of the moving blades (by the injection nozzles located in the stator blades) because the moving blades are located downstream of the stator blades, Fig. 2. Note: Claim 1 is drawn to an apparatus --- a “control unit”. The remainder of the claimed controller “structure” (such the closing of a water injection valves above a predetermined maximum) is merely a description of a specific sequence of steps of operation of the controller and constitutes a method. The order and specific operations of the control method is not given patentable weight. For purposes of examination, any controller which may be programmed to operate in the desired fashion anticipates the invention structurally and is capable of performing the claimed sequence of steps if so desired. Note: a recitation of the intended use of the claimed invention must result in a structural

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difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the limitation.

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7.

8. Nagata does not teach a *first* valve (regulating the first water injection nozzle) nor a control unit controlling the first valve; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Nagata to create a first valve (and a corresponding control unit) as this is a common fluid control mechanism, as seen in the control of stator blade nozzle fluid flow in Nagata, to achieve the expected result. Additionally, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify

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Nagata, as modified above, to create a cleaning device with a controlled first valve to control the cleaning process to achieve the expected result.

9. Nagata, as modified above, does not teach a pressure gage operatively positioned to detect the pressure between the stator blade and moving blade; however, Moriya teaches a pressure gage (differential pressure gauge 15) operatively positioned to detect the pressure between the stator blade and moving blade. A first water injection nozzle 12 is disposed in the duct 2 and is connected to a water supply. The water injection nozzle 12 is disposed at a position upstream to the stator blade (dynamic vane 6). There is a control unit (16) for regulating the water injection nozzle 12 upon exceeding a predetermined pressure (water is injected until the pressure drops below the predetermined pressure) to remove dust. Since Nagata teaches monitoring the exhaust gas pressure (PB), Fig. 7, it would have been obvious to modify Nagata, as modified above, with Moriya, to create a cleaning control mechanism which detects the pressure to control the nozzles effectively.

10. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata (Japanese Patent Publication No. 58-077103) in view of Moriya (Japanese Patent Publication No. 61-169627) and further in view of Rice (US Patent No. 4,384,452).

11. Nagata teaches a turbine having a casing defining a duct. Turbine blades are provided with a moving blade (13) which rotates together with a rotor and a stator blade (11) which is located on the upstream side of the moving blade and is held on the casing and is housed in the duct, Fig. 2. The stator blade (11) has opposing surfaces (11a & 11b) and the duct is operatively positioned to introduce a fluid to the turbine blades and the moving blade is rotated by the fluid introduced into the duct. There is a first water injection nozzle (15) disposed at a position

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upstream of the stator blade and connected to a water supply, Fig. 2. A plurality of water injection nozzles (331~335), (311~315), (321~325) are disposed in the stator blade (11) and connected to a water supply source via a second valve (51-53), Figs. 5 & 7. The plurality of water injection nozzles comprise a first plurality of nozzles (321~325)(331~335) operatively positioned to cause water to flow onto both opposing surfaces (11b & 11a, respectively) of the stator blade (11). A controller (61-63) operates the opening of the second valve based on the exhaust gas pressure (PB), Fig. 7. Nagata teaches the cleaning of the back surface of the moving blades (by the injection nozzles located in the stator blades) because the moving blades are located downstream of the stator blades, Fig. 2. Note: Claim 1 is drawn to an apparatus --- a “control unit”. The remainder of the claimed controller “structure” (such the closing of a water injection valves above a predetermined maximum) is merely a description of a specific sequence of steps of operation of the controller and constitutes a method. The order and specific operations of the control method is not given patentable weight. For purposes of examination, any controller which may be programmed to operate in the desired fashion anticipates the invention structurally and is capable of performing the claimed sequence of steps if so desired. Note: a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the limitation.

12. Nagata does not teach a *first* valve (regulating the first water injection nozzle) nor a control unit controlling the first valve; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been obvious to one of

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ordinary skill in the art at the time of the invention to modify Nagata to create a first valve (and a corresponding control unit) as this is a common fluid control mechanism, as seen in the control of stator blade nozzle fluid flow in Nagata, to achieve the expected result. Additionally, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Nagata, as modified above, to create a cleaning device with a controlled first valve to control the cleaning process to achieve the expected result.

13. Nagata, as modified above, does not teach a pressure gage operatively positioned to detect the pressure between the stator blade and moving blade; however, Moriya teaches a pressure gage (differential pressure gauge 15) operatively positioned to detect the pressure between the stator blade and moving blade. A first water injection nozzle 12 is disposed in the duct 2 and is connected to a water supply. The water injection nozzle 12 is disposed at a position upstream to the stator blade (dynamic vane 6). There is a control unit (16) for regulating the water injection nozzle 12 upon exceeding a predetermined pressure (water is injected until the pressure drops below the predetermined pressure) to remove dust. Since Nagata teaches monitoring the exhaust gas pressure (PB), Fig. 7, it would have been obvious to modify Nagata, as modified above, with Moriya, to create a cleaning control mechanism which detects the pressure to control the nozzles effectively.

14. In regards to claim 6, Nagata, as modified by Moriya, above, does not disclose stator blade surface reforming; however, Rice discloses coating the stator blade, which is a type of surface reforming described by Applicant (col. 9, ll. 35-55; see entire document as well). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify

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Nagata, as modified by Moriya, above, with Rice for the benefit of having to do fewer repairs on the equipment.

15. Nagata, as modified by Moriya, as modified by Rice, above, does not teach the specific reforming process; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Nagata, as modified by Moriya, as modified by Rice, above, to use a conventional reforming process (such as film coating) to achieve the expected result.

16. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata (Japanese Patent Publication No. 58-077103) in view of Moriya (Japanese Patent Publication No. 61-169627) and further in view of Rice (US Patent No. 4,384,452).

17. Nagata teaches a turbine having a casing defining a duct. Turbine blades are provided with a moving blade (13) which rotates together with a rotor and a stator blade (11) which is located on the upstream side of the moving blade and is held on the casing and is housed in the duct, Fig. 2. The stator blade (11) has opposing surfaces (11a & 11b) and the duct is operatively positioned to introduce a fluid to the turbine blades and the moving blade is rotated by the fluid introduced into the duct. There is a first water injection nozzle (15) disposed at a position upstream of the stator blade and connected to a water supply, Fig. 2. A plurality of water injection nozzles (331~335), (311~315), (321~325) are disposed in the stator blade (11) and connected to a water supply source via a second valve (51-53), Figs. 5 & 7. The plurality of water injection nozzles comprise a first plurality of nozzles (321~325)(331~335) operatively positioned to cause water to flow onto both opposing surfaces (11b & 11a, respectively) of the stator blade (11). A controller (61-63) operates the opening of the second valve based on the

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exhaust gas pressure (PB), Fig. 7. Nagata teaches the cleaning of the back surface of the moving blades (by the injection nozzles located in the stator blades) because the moving blades are located downstream of the stator blades, Fig. 2. Note: Claim 1 is drawn to an apparatus --- a “control unit”. The remainder of the claimed controller “structure” (such the closing of a water injection valves above a predetermined maximum) is merely a description of a specific sequence of steps of operation of the controller and constitutes a method. The order and specific operations of the control method is not given patentable weight. For purposes of examination, any controller which may be programmed to operate in the desired fashion anticipates the invention structurally and is capable of performing the claimed sequence of steps if so desired. Note: a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the limitation.

18. Nagata does not teach a *first* valve (regulating the first water injection nozzle) nor a control unit controlling the first valve; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Nagata to create a first valve (and a corresponding control unit) as this is a common fluid control mechanism, as seen in the control of stator blade nozzle fluid flow in Nagata, to achieve the expected result. Additionally, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Nagata, as modified above, to create a cleaning device with a controlled first valve to control the cleaning process to achieve the expected result.

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19. Nagata, as modified above, does not teach a pressure gage operatively positioned to detect the pressure between the stator blade and moving blade; however, Moriya teaches a pressure gage (differential pressure gauge 15) operatively positioned to detect the pressure between the stator blade and moving blade. A first water injection nozzle 12 is disposed in the duct 2 and is connected to a water supply. The water injection nozzle 12 is disposed at a position upstream to the stator blade (dynamic vane 6). There is a control unit (16) for regulating the water injection nozzle 12 upon exceeding a predetermined pressure (water is injected until the pressure drops below the predetermined pressure) to remove dust. Since Nagata teaches monitoring the exhaust gas pressure (PB), Fig. 7, it would have been obvious to modify Nagata, as modified above, with Moriya, to create a cleaning control mechanism which detects the pressure to control the nozzles effectively.

20. Nagata, as modified by Moriya, above, does not teach the turbine moving blade surface reforming; however, Rice discloses coating the moving blade (Column 9, Lines 35-55). Coating is described by the Applicant as a type of surface reforming. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Nagata, as modified by Moriya, above, with Rice for the benefit of having to do fewer repairs on the equipment.

21. Nagata, as modified by Moriya, as modified by Rice, above, does not teach the specific reforming process; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Nagata, as modified by Moriya, as modified by Rice, above, to use a conventional reforming process (such as film coating) to achieve the expected result.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON P. RIGGLEMAN whose telephone number is (571)272-5935. The examiner can normally be reached on M-F, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Barr/
Supervisory Patent Examiner, Art Unit 1792

Jason P Riggleman
Examiner
Art Unit 1792

/J. P. R./
Examiner, Art Unit 1792